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PORT OF PORTLAND

May 31, 2002

Mr. Rodney Struck
Oregon Department of Environmental Quality
2020 SW 4th Avenue, Suite 400
Portland, Oregon 97201

Subject: Terminal 1 South
Response to Review Comments on Feasibility Study
ECSI File No. 2042

Dear Mr. Struck:

The Port of Portland (Port) has prepared the following responses to the Oregon Department of Environmental Quality (DEQ) review comments on the Terminal 1 (T1) South Feasibility Study, as documented in your letter dated May 3, 2002. The Port's response to DEQ's general and specific comments (repeated below) are summarized below.

General Comment

The various alternatives include abandoning the existing groundwater monitoring well network. DEQ recommends these wells be preserved and additional groundwater monitoring performed pending resolution of Portland Harbor groundwater issues.

Response: A second round of groundwater monitoring was conducted and these data have been incorporated into the risk assessment update as part of the response to comments on the risk assessment. To the extent practicable within the new development of the site, the monitoring wells will be preserved.

Specific Comments

1. Executive Summary. Page 1. Paragraph 4. The rule citation should read OAR 340-122-090(3) and (4).

   Response: This correction was incorporated.

2. Section 2.4. The summary of the risk assessment results should [be] revised as necessary to address DEQ's comments on the Baseline Risk Assessment (DEQ Letter dated February 12, 2002). This section should also address potential risks to ecological or human health (i.e., fish consumption) associated with groundwater discharging to surface water.

   Response: This section was revised consistent with revisions to the risk assessment.

3. Section 2.4. Page 8. Last Paragraph. Please verify that the statement, "No acceptable risks were identified for the excavation worker for contamination detected beneath the roadway" is correct and revise it, if necessary.

   Response: The section was revised to state there are "No unacceptable risks. . "

4. Section 2.4. Page 9. Area C. This section should provide additional justification for not carrying Area C through the Feasibility Study. DEQ recommends that the risk assessment summary for Area C presented in Section 7.0 (pages 25 and 26) be revised and moved to this section for clarity.

   Response: This section was revised by moving Area C information from Section 7.0 to Section 2.4. In addition, Section 3.1 has been expanded to clarify that there are no unacceptable risks for Area C so it is not carried further in the FS. Therefore, there is no discussion of residual risk for Area C in Section 7.0.

5. Section 2.5.1. Page 11. DEQ considers groundwater discharge to surface water a beneficial use. The discharge of groundwater should be evaluated to determine if it poses a "significant adverse effect" to the Willamette River. Data from the groundwater monitoring wells in October 2001 and January 2002 do not appear to exceed DEQ Ecological Screening Benchmark Values (SBVs) for VOCs, PAHs, or most metals. The exceedance of the SBVs for copper and lead should be discussed. In addition, groundwater concentrations should be screened against surface water criteria developed for the protection of human health from the ingestion of fish tissue. If it is determined groundwater poses an unacceptable risk, then groundwater should be carried forward into the Feasibility Study.

   Response: Section 2.5.1 correctly identified groundwater discharge to the river as a beneficial use. The risk assessment evaluated potential ecological impacts and concluded that impacts are acceptable. Based on DEQ comments, the risk assessment now includes evaluation of potential impact to human health through consumption of fish. This risk was found to be acceptable. Section 2.5.1 has been expanded to state that the risk assessment found no impact to surface water.

6. Section 3.1. Page 12. The risk summary for Areas A and B should be revised to address potential future construction workers, if necessary following revision of the Baseline Risk Assessment (See DEQ's letter dated February 12, 2002).

   Response: This section has been revised to address risks to construction workers.

7. Section 3.1. Page 13. A remedial action objective should be added for Areas A and B that addresses long-term protection of groundwater (i.e., How will long-term protection of groundwater be ensured? Why are residual concentrations in soil considered protective of groundwater quality?).

   Response: The remedial action objectives are designed to address the risks identified in the risk assessment. Because the risk assessment determined that risks to groundwater are acceptable, no remedial action objective for groundwater are identified.

8. Section 3.1. Page 13. The basis for the development of the Remedial Action Levels should be described. Are these levels set at $1x10^{-6}$ excess cancer risk for individual compounds or a $1x10^{-5}$ cancer risk for multiple carcinogens?

   Preliminary remedial action goals (PRGs) for potential future excavation workers, commercial/occupational workers, and construction workers should be calculated and presented in the Feasibility Study. The soil horizon that each of the PRGs applies to should be clearly defined. An alternative would be to state that the "residential" remedial action levels are considered protective of future excavation worker, commercial/occupational, and construction worker exposure scenarios and to provide the basis for this statement.

   Response: The cleanup levels have been further developed to address residential, commercial, excavation, and construction workers. These have been presented in a new Table 1. Notes to the table identify that these cleanup levels are based on $1x10^{-6}$ excess cancer risk for individual compounds. Because there are less than ten COPCs for this site, the cumulative risk from all of the COPCs will be below the cumulative carcinogenic target risk level and therefore, acceptable. In addition, a new Figure 3 has been added that identifies individual samples that exceed any of the cleanup or hot spot levels. This figure is the basis for the new Figure 4 (old Figure 3) showing the extent of the proposed cleanup.

9. Section 5.2. Page 17. Protectiveness. It is unclear from the description of this alternative that this alternative will be protective of potential future excavation workers or construction workers that may be exposed to residual contamination outside of the hotspot removal areas. Are institutional controls needed to prevent potential future exposure (i.e., excavation and redistribution) to soil with contamination above risk-based concentrations and to ensure appropriate management of these long-term?

Response: The last paragraph of the description of this alternative has been expanded to identify that the institutional controls will include a soil management plan that defines soil handling, management, training, and health and safety requirements for future workers.

10. Section 5.3. Page 19. Description. It is unclear from the description what soils will be removed from the site under this alternative. It appears from Figure 3, that in general only soils to a depth of approximately 3-feet below ground surface will be removed. The basis for this depth of 3 feet should be provided.

    Response: The alternative description has been expanded to clarify how the depths of excavation were determined (includes references to expanded Sections 3.3 and 3.1).

11. Section 5.3. Page 19. Protectiveness. It is unclear from the description of this alternative that this alternative will be protective of potential future excavation workers or construction workers that may be exposed to residual contamination below the proposed excavation depth of approximately 3-feet below ground surface. The basis for this depth should be provided. Are institutional controls needed to prevent potential future exposure (i.e., excavation and redistribution) to soil with contamination above risk-based concentrations and to ensure appropriate management of these long-term?

    Response: The alternative description has been expanded to clarify how the depths of excavation were determined (includes references to expanded Sections 3.3 and 3.1). From the expanded discussion in Section 3, it is shown that all soil with sample data above protective levels for future workers (within the depth range of 0 to 15 feet) would be removed under this alternative. Therefore, there is no residual contamination unacceptable to future workers. However, in addition, the future development will include a soil management plan that defines soil handling, management, training, and health and safety requirements for future workers.

12. Section 5.4. Page 20. Protectiveness. It is unclear from the description that this alternative will be protective of potential future excavation workers or construction workers that may be exposed to residual contamination below the proposed excavation depth of approximately 3-feet below ground surface. The basis for this depth should be provided. Are institutional controls needed to prevent potential future exposure (i.e., excavation and redistribution) to soil with contamination above risk-based concentrations and to ensure appropriate management of these long-term?

    Response: See response to Comment 11.

13. Section 5.4. Page 21. Additional discussion should be added to this section regarding the differences in implementability, implementation risk, and reasonableness of cost between on-site and off-site thermal desorption alternatives.

    Response: After further discussions with potential vendors for on-site thermal desorption treatment, this technology was determined not to be feasible for Parcel 2 but feasible for Parcel 3, due to the estimated contaminated soil volumes. This alternative was modified to address the differences of on-site and off-site thermal treatment.

14. Section 7.0. The residual risk assessment does not demonstrate that the recommended alternative is protective of potential future excavation worker, commercial worker, or construction worker scenarios. If the residential cleanup levels were applied to deeper soils (15 ft.) this would be protective of other worker scenarios. It is unclear how potential exposure (i.e., excavation and redistribution) to soil with contamination above risk-based concentrations will be prevented or managed long-term and how appropriate management of these soils will be ensured long-term.

    Response: Section 7 has been revised to clarify the residual risk for all exposure pathways (residential, commercial, excavation worker, and construction worker). The residual risk was calculated in the same manner as the original baseline risk assessment using the data remaining after removing sample results corresponding to the soil to be removed by the proposed alternative. Any modifications to assumptions relative to the baseline risk assessment are discussed in Section 7.

15. Section 7.0. The residual risk assessment should discuss why the recommended remedy is protective of groundwater beneficial uses (i.e., will groundwater be discharged to the river at concentrations that may result in a significant adverse impact to the beneficial use of water?).

    Response: The section was expanded to state that the residual risk for groundwater would be the same as or less than the baseline risk, and because the baseline risk is acceptable, the residual risk is acceptable.

16. Section 7.0. Page 24 and 25. Areas A and Area B. The residual risk assessment concludes that the unacceptable risk (under reasonable maximum exposure (RME) conditions) remaining after the site cleanup is due to the presence of arsenic in the soil. It should be noted in the report that is because:

    a) For a potential future resident, soil exposure was limited to the 0-3 ft. bgs interval (i.e., soil with PAH concentrations above residential cleanup levels were only removed from 0 to 3 ft bgs). The area left was either not analyzed for PAHs (i.e., B-104, B-105) or residual PAHs contamination was detected below 3 ft.

b) Some soil is left in place above residential cleanup levels either outside the excavation areas and below 3 ft. (i.e. B-107-4ft., B-69 –10ft) and within the excavation areas, but under the proposed 3 ft. excavation depth (i.e. B-81 – 10ft).

c) Some locations are proposed for excavation to 10 ft., but these areas are select and small (B-92, B40 and B-69). These are selected for removal because they exceed the hot spot level (defined as 100 times the cleanup level for carcinogens for residential).

Response: The section was revised to clarify that some soil above residential and commercial cleanup levels would remain but the risk is acceptable because this is below the depth range at which these receptors would be exposed. See also the response to Comment 19.

17. Section 7.0. Page 25. Area C. Paragraph 2. The first sentence should be clarified to read "...no detected concentrations of arsenic in ***surface*** soils ***(i.e., 0-3 ft. bgs)*** that exceeded...." It should be noted that a soil sample from boring B-3 detected arsenic at a concentration of 11.8 mg/kg at a depth of 11-12' ft. bgs. It does not appear that the sample results from B-27, MW-6, or MW-7 were included in Appendix A to calculate the EPC for arsenic.

Response: These changes were made to this paragraph. All discussion of Area C was moved to Section 2.4. The data from B-27, MW-6, and MW-7 were included in the baseline risk assessment for Area C. Because the risk in Area C is acceptable, no remediation is required and no residual risk calculations were completed for Area C.

18. Section 7.0. Since the exposure units are larger than the proposed development plans for buildings, the residual risk assessment should demonstrate that the cleanup levels (residential) are met in each of the smaller planned exposure units. This could be a revised or addition to the current residual risk assessment, and would be an evaluation based on new exposure units. It basically just verifies that the clean up levels are protective of the future use (development) of the site.

Response: As discussed in Comment Response #8, all samples that exceed any of the cleanup or hot spot levels identified for each area will be removed. There will be no soil samples remaining in the 0-3 feet bgs soil prism that exceed residential cleanup numbers in Areas A and B. Therefore, regardless of the assumed exposure unit, there is no potential for unacceptable residential risks under this condition.

19. Section 7.0. The residual risk assessment should address the possibility of future excavation of contaminated soils present at depth and re-distributing this soils at

the surface. If this is the case, then residential numbers should be used to identify potential unacceptable risks for all depths for which this possibility exists.

Response: The revised residual risk assessment considered the potential for the deeper soil to be excavated and spread on the site. These results are discussed in the revised FS.

20. Section 7.0. Soil that exceed the excavation worker or construction worker PRGs following the removal action should be shown on appropriate figures in the FS and discussed in the residual risk assessment.

Response: All of the soil samples with concentrations exceeding the excavation worker or construction worker PRGs will be removed during the removal action.

Please contact me at (503) 944-7533 with any questions. Your prompt attention is appreciated.

Sincerely,

Joe Mollusky

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Environmental Project Manager
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